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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/708,965	11/08/2000	Kanu G. Shah	60680-1378	3214

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EXAMINER
BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
1711	14

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/708,965	SHAH ET AL.
	Examiner	Art Unit
	Melanie D. Bissett	1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18-24* is/are allowed.

6)☒ Claim(s) *1-8 and 11-17* is/are rejected.

7)☒ Claim(s) *9,10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The rejections based on 35 USC 102 and 103 have been withdrawn based on the applicant's amendment. However, the double patenting rejections have been maintained, and new rejections have been included as necessitated by amendment.

2. It is noted that, upon the applicant's suggestion, the examiner has considered the prior art found in related application 09/644,316. It is the examiner's position that the Watariguchi reference (US 4,271,258 A) teaches away from the addition of monofunctional monomers since the addition of said monomer would deteriorate properties (col. 5 lines 30-36). Regarding the Boldt reference (US 5,536,758 A), it is the examiner's position that the art cited in the present application represents the closest prior art.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-5 and 15-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-2, 5, 8-10, 33, and 23-24 of copending Application No. 09/644,634. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

5. From a prior Office action:

> 8. Copending claim 1 discloses a process for sealing and insulating a fuel cell plate comprising providing a fuel cell plate and applying a radiation- or heat-polymerizable coating precursor to a surface of the plate, and exposing the coating precursor to radiation or heat to initiate polymerization. Although the claim does not mention "cross-linking" by radiation or heat, the term "polymerization" would include crosslinking reaction. Furthermore, although the claim does not specify infrared radiation, dependent claim 8 limits the precursor to be adapted to polymerize by infrared radiation. Thus, it would have been prima facie obvious to use infrared radiation or heat to polymerize or crosslink the coating of copending claim 1 in the expectancy of beneficial results.
> 9. Copending claim 33 discloses an insulated fuel cell plate comprising a plate and a coating precursor applied thereon, where the coating precursor is an acrylate resin, an epoxy nitrile resin, or an organopolysiloxane resin. Although the scope of the claims differ, it is the examiner's position that it would have been prima facie obvious to choose epoxy nitrile resin for the coating precursor in the expectancy of beneficial results. Furthermore, copending claims 23-24 specify coating thicknesses for insulated fuel cell coatings. It is the examiner's position that it would have been prima facie obvious to coat the epoxy nitrile resins of copending claim 33 at the specified thicknesses of copending claims 23-24 in the expectancy of beneficial results.
> 10. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Note: A double patenting rejection over Application No. 09/644316 will not be made since it is believed to be abandoned.

Claim Rejections - 35 USC § 102

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Pellegri et al.

9. Pellegri teaches an improved bipolar separator for electrochemical cells, where the cells may be used in fuel cells (abstract; col. 1 lines 7-11). The separators are substantially impermeable to diffusion of hydrogen, are rigid and are protected from discharge of anionic species (col. 2 lines 33-38). The separator plates are made by molding carbon, graphite, or metallic powder into a thermosetting resin (col. 2 lines 60-68). Insulating coatings for the separators include polyester, phenolic, furanic, and epoxide resins (col. 4 lines 44-53). The example shows a separator coated with a resin coating to a thickness of 200 μm, where the coating is cured with heat. Thus, the example shows a fuel cell plate coated with an insulative coating which is adapted to polymerize with heat. The coatings are exposed to radiation for less than about 30 minutes, since heat is used for curing instead of radiation.

10. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Breault et al.

11. Breault teaches a fuel cell assembly comprising a fibrous gas porous holder between a pair of gas impervious graphite plates (col. 2 line 64-col. 3 line 5). The reference teaches applying an adhesive to the plate and curing the adhesive with heat (col. 6 lines 58-68), where the bond provides insulation (col. 7 lines 1-14). Thus, the reference teaches providing a fuel cell plate, applying a heat-curable coating, and

exposing the coating to heat. The coatings are exposed to radiation for less than about 5 seconds, since heat is used for curing instead of radiation.

Claim Rejections - 35 USC § 103

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. Claims 6-8, 11-12, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellegri et al. in view of Siebert, as evidenced by Stucke.

14. Pellegri applies as above, failing to mention the use of infrared-curable sealant materials comprising epoxy resin and acrylontrile butadiene copolymer. Siebert teaches the use of compositions comprising epoxy resin, polybutadiene-acrylonitrile rubber, and an amine crosslinking agent (example 1), where the mixture is cast onto a substrate and thermally cured (col. 7 lines 33-50). The compositions can be used as castable gaskets, seals, and o-rings (col. 7 lines 51-57). Siebert notes the use of colorants (col. 7 lines 15-19) and aromatic liquid compounds (col. 5 lines 22-40), thus teaching the use of solvents. Since infrared radiation is conventionally used as a heating method for crosslinking epoxy resins in short amounts of time (Stucke, abstract), it is the examiner's position that the epoxy resin of Siebert's invention is inherently adapted to crosslink in response to infrared radiation. It is the examiner's position that it would have been prima facie obvious to use the epoxy coatings of Siebert's invention as gaskets in Pellegri's invention, since the epoxy compositions of Siebert's invention are castable and hence more easily applied.

15. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pellegri et al. in view of Siebert as evidenced by Stucke as applied to claims 6-8 and 11-12 above, and further in view of Ciba-Giegy.

16. The cited references apply as above, failing to mention the use of air-release agents and slip aids. Ciba-Giegy shows the conventionality of adding such components to an epoxy coating composition (p. 3 line 57-p. 4 line 4). Since Siebert suggests that conventional additives may be added to the epoxy composition of the invention, it is the examiner's position that it would have been prima facie obvious to add slip aids and air-release agents to optimize coating appearance and processing.

17. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pellegri et al. in view of Canfield.

18. Pellegri applies as above for the process of sealing a fuel cell plate, failing to mention the application of the coating by screen printing. However, Canfield shows the conventionality of screen printing a gasket onto a fuel cell plate (Figure 6, col. 4 lines 40-51). It is the examiner's position that it would have been prima facie obvious to use a screen printing technique to apply the gasket layer of Pellegri's invention to provide a patterned discontinuous gasket layer in the expectancy of beneficial results.

19. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pellegri et al.

20. Pellegri applies as above, teaching a coating layer of 200 μm but failing to teach a coating layer of less than about 150 μm thick. Because of the insulative properties of the coating, it is the examiner's position that it would have been prima facie obvious to apply the coating at any thickness to balance cost and insulation properties of the cell structure.

21. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pellegri et al. in view of Ying et al.

22. Pellegri applies as above, failing to mention coatings cured by methods other than heating. Ying discloses a protective coating for separators in electrochemical cells, where a protective coating is applied to a microporous layer (abstract). The coating may be coated and cured by heat, UV light, visible light, infrared radiation, and electron beam radiation (col. 7 lines 48-55), and the separators may be used in fuel cell applications (col. 11 lines 9-15). Ying teaches combining an ethoxylated diacrylate with a urethane acrylate and a photosensitizer, coating the mixture at a thickness of 4 microns onto a substrate, and exposing the coating to UV lamps for 30 seconds to cure (example 1). The protective coatings enhance the flexibility and toughness of the separator (col. 13 lines 60-65). Therefore, it is the examiner's position that it would have been prima facie obvious to use the protective coatings of Ying's invention in

Pellegri's electrochemical cells and to use any cure method necessary to improve the toughness of the separators.

Allowable Subject Matter

23. Claims 18-24 are allowed.

24. Claims 9-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

25. The following is a statement of reasons for the indication of allowable subject matter:

26. The closest prior art, Siebert, discloses the use of compositions comprising epoxy resin, polybutadiene-acrylonitrile rubber, and an amine crosslinking agent, where the mixture is cast onto a substrate and thermally cured. The compositions can be used as castable gaskets, seals, and o-rings. However, the reference does not teach the addition of a thermoplastic resin and further does not demonstrate the compositions applied to fuel cells. Therefore, it is the examiner's position that the use of the applicant's claimed coatings including thermoplastic resins for fuel cell applications is novel and unobvious over the closest prior art.

Response to Arguments

27. Applicant's arguments with respect to claims 1-8 and 11-16 have been considered but are moot in view of the new ground(s) of rejection.

28. A new primary reference has been provided to teach the use of gas impermeable fuel cell plates.

Conclusion

29. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
May 30, 2003

James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700